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Serial No.: 09/472,314 - Confirmation No. 8582
Notice of Allowance Date: January 31, 2005
Title: SYSTEM & METHOD FOR PROVIDING..
Attorney Name: Roger R. Wise
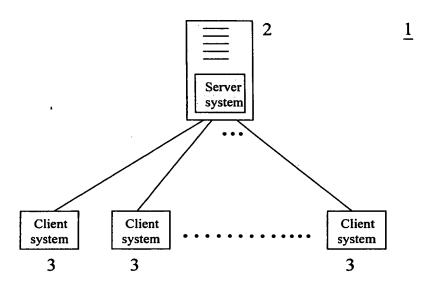Tel.: (213) 488-7100   Docket No.: 81674-264191
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2   1

Server
system

• • •

Client   Client   • • • • • • • • • • • •   Client
system   system   system

3   3   3

Fig. 1

5   3

CPU

Network device

RAM

4

Fig. 2

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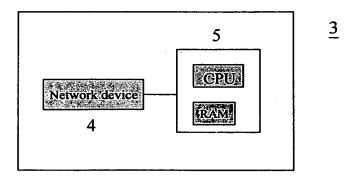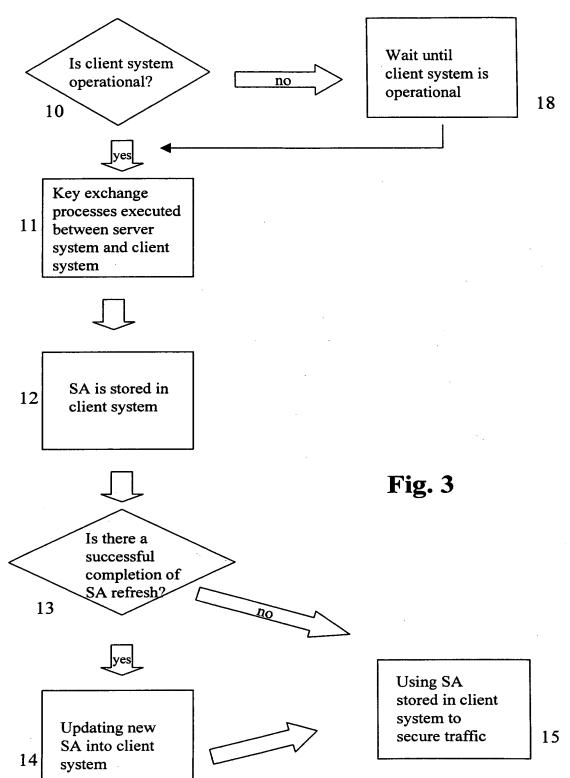MAR 0 3 2005

Is client system operational? 10

no

Wait until client system is operational 18

yes

Key exchange processes executed between server system and client system 11

SA is stored in client system 12

Fig. 3

Is there a successful completion of SA refresh? 13

no

yes

Updating new SA into client system 14
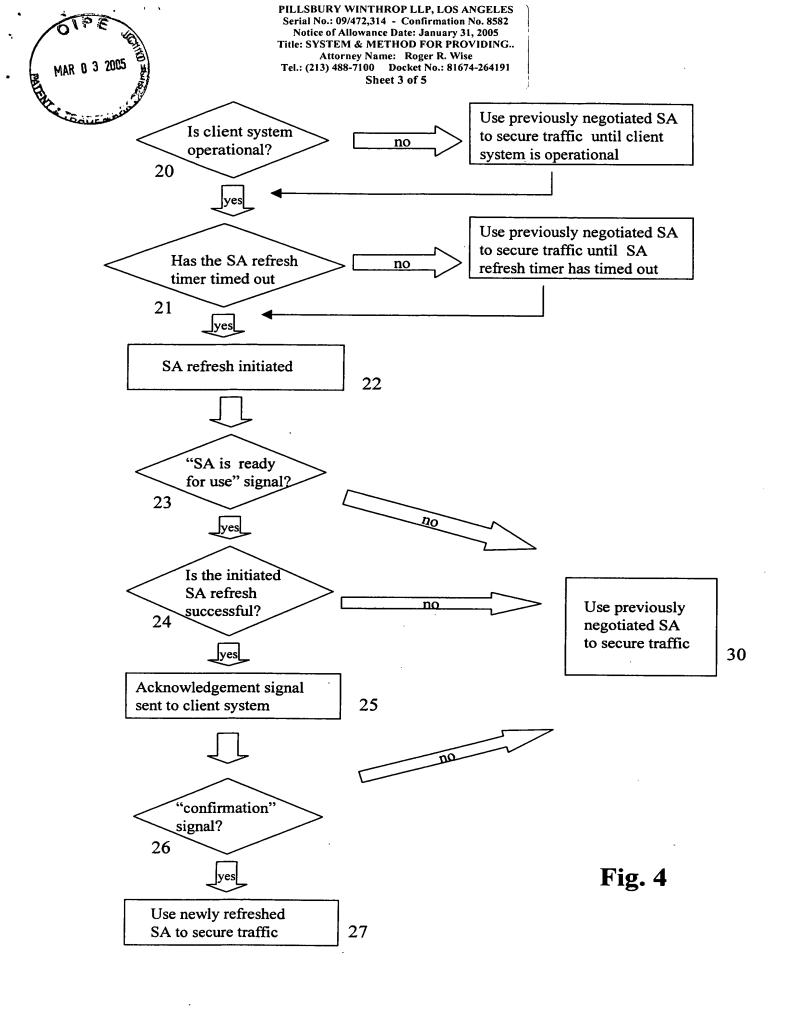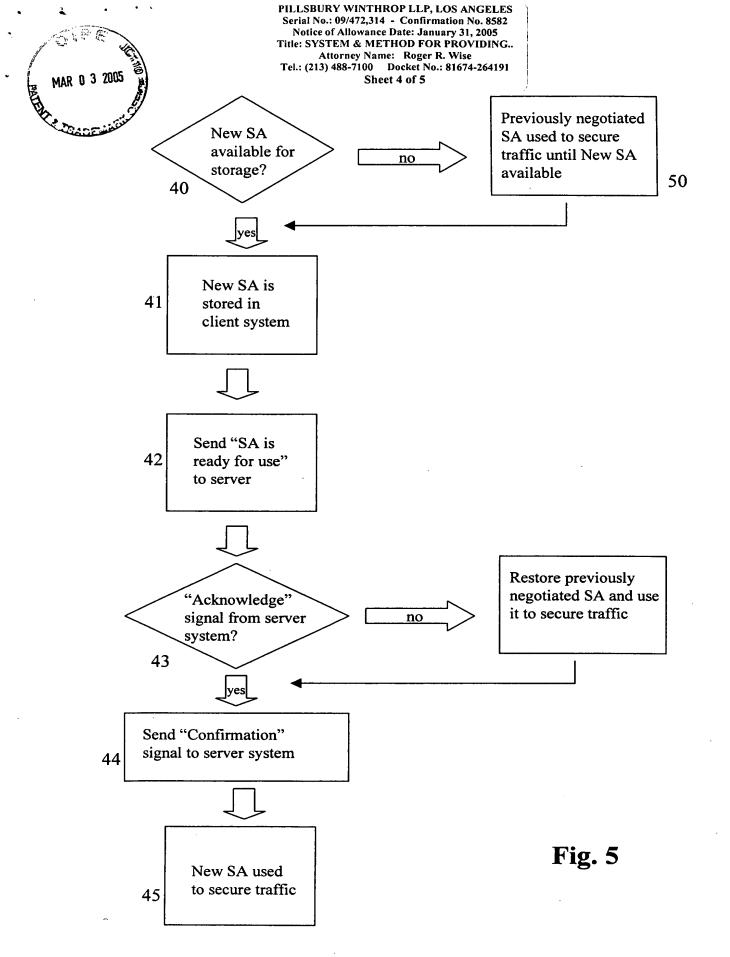
Using SA stored in client system to secure traffic 15

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Is client system operational? 20 — no → Use previously negotiated SA to secure traffic until client system is operational

yes ↓

Has the SA refresh timer timed out 21 — no → Use previously negotiated SA to secure traffic until SA refresh timer has timed out

yes ↓

SA refresh initiated 22

↓

"SA is ready for use" signal? 23 — no →

yes ↓

Is the initiated SA refresh successful? 24 — no → Use previously negotiated SA to secure traffic 30

yes ↓

Acknowledgement signal sent to client system 25

↓

"confirmation" signal? 26 — no →

yes ↓

Use newly refreshed SA to secure traffic 27

Fig. 4

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MAR 0 3 2005

New SA available for storage?
40

no → Previously negotiated SA used to secure traffic until New SA available   50

yes

41 | New SA is stored in client system

42 | Send "SA is ready for use" to server

"Acknowledge" signal from server system?
43

no → Restore previously negotiated SA and use it to secure traffic

yes

44 | Send "Confirmation" signal to server system

45 | New SA used to secure traffic

Fig. 5

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Fig. 6

State of Client System	State of Server System	Attributes of Transition States
OS up	OS up	IPSec stack on both client and server systems Newly negotiated SA Updated in client system if there is successful completion of SA refresh
OS hung	OS up	IPSec stack not on client system Previously negotiated SA stored in client system is inhibited from being updated
Pre-boot	OS up	IPSec stack not on client system Previously negotiated SA stored in client system is inhibited from being updated
OS suspend	OS up	IPSec stack not on client system Previously negotiated SA stored in client system is inhibited from being updated
Cold-boot	OS up	Client system does not have any security context Configuration option is provided for managing client system without security
Any state	OS hung	Client system is unmanageable by OS hung server system. Fault tolerant system is provided for switching control to secondary server system
OS hung / Pre-boot	Cold Boot	Server system does not have any security context Configuration option is provided for managing client system without security
Cold Boot	Cold Boot	Neither system has any security context Configuration option is provided for allowing traffic to be communicated in the clear